

SECTION 3.8

Cultural Resources

3.8 Cultural Resources

3.8.1 Introduction and Summary

This section addresses existing cultural resources in the LCR, IID water service area and AAC, and Salton Sea geographic subregions and potential impacts to cultural resources associated with the implementation of the Proposed Project. Section 3.8.2 describes the applicable regulations and standards that pertain to cultural resources in the Proposed Project's region of influence. Section 3.8.3 presents existing cultural resources characteristics. Cultural resources in the SDCWA service area geographic subregion would not be affected by this Project because no construction or land disturbance would occur; therefore, this subregion is not discussed.

Cultural resources are districts, sites, buildings, structures, objects, and landscapes significant in American history, prehistory, architecture, archaeology, engineering, and culture. These resources are protected by statutes and regulations at all levels of government and must be taken into consideration in this EIR/EIS. For the purposes of this EIR/EIS, cultural resources include existing and/or potential historic and prehistoric archaeological sites, historic buildings and structures, American Indian traditional cultural properties (TCPs), and paleontological sites. Cultural resources are divided into three groups: archaeological resources, ethnographic resources, and the historic built environment (architectural resources). These groups are further defined below.

Archaeological resources include precontact or prehistoric and post-contact or historic resources. Prehistoric resources are physical properties that result from human activities that predate European contact with native peoples in America. Prehistoric archaeological sites may include villages, campsites, lithic or artifact scatters, fishing sites, roasting pits/hearths, milling features, rock art (petroglyphs/pictographs, intaglios), rock features (circles, blinds, etc.), and burials. Historic archaeological sites consist of the physical remains (unoccupied ruins) of structures or built objects that result from the work of EuroAmericans. These physical remains must be more than 50 years old and postdate contact between Europeans and Native Americans. Historic archaeological sites may include townsites, homesteads, agricultural or ranching features, mining-related features, and refuse concentration.

3.8.1.1 Archaeological Resources

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3.8.1.2 Ethnographic Resources

Ethnographic resources include sites, areas, and materials important to American Indians for religious, spiritual, or traditional uses. These resources can encompass the sacred character of physical locations (mountain peaks, springs, and burial sites) or particular native plants, animals, or minerals that are gathered for use in traditional ritual activities. Also included are villages, burials, rock art, rock features, and traditional hunting, gathering, or fishing sites. Ethnographic resources are often referred to as “traditional cultural properties,” a type of cultural resource that can be eligible for listing in the National Register of Historic Places (NRHP) if certain criteria are met (refer to National Register Bulletin 38 – *Guidelines for Evaluating and Documenting Traditional Cultural Properties* – Parker and King 1990).

Ethnographic resources that meet the definition set forth in Executive Order 13007 can be considered sacred sites under Federal law. Activities that might affect accessibility to, or availability of, materials used in traditional practices are subject to Executive Order 13007. In some cases, ethnographic resources may overlap prehistoric or historic archaeological resources or they may be embedded within each other.

3.8.1.3 Historic Built Environment

Architectural resources of the historic built environment can include houses, barns, stores, post offices, bridges, and community structures that are more than 50 years old. These resources are generally standing structures that are currently occupied or are being preserved from deterioration rehabilitated to accommodate occupation and use.

Table 3.8-1 presents a summary of the potential cultural resources impacts that could result from implementation of the Proposed Project and/or Alternatives.

3.8.2 Regulatory Framework

3.8.2.1 Federal Standards and Regulations

Archaeological and architectural resources (buildings and structures) are protected through the National Historic Preservation Act (NHPA) of 1966 and its implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979.

Section 106 of the NHPA (16 USC 470-470w6), as amended (PL 89-515), requires federal agencies to consider the effects of their actions on properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP). The implementing regulations of the NHPA require federal agencies to provide the State Historic Preservation Officer (SHPO) with an opportunity to comment on any actions that may affect a historic property and to provide the Advisory Council on Historic Preservation (ACHP) with an opportunity to comment on any action that will adversely affect a historic property. Section 110 of the NHPA (16 USC 470h-2[a]) directs federal agencies to consider the effects of their actions on properties that are owned or controlled by federal agencies.

TABLE 3.8-1
Summary of Cultural Resource Impacts¹

Proposed Project: 300 KAFY All Conservation Measures	Alternative 1: No Project	Alternative 2: 130 KAFY On-farm Irrigation System Improvements Only	Alternative 3: 230 KAFY All Conservation Measures	Alternative 4: 300 KAFY Following Only
LOWER COLORADO RIVER				
No impact.	Continuation of Baseline conditions.	No impact.	No impact.	No impact.
IID WATER SERVICE AREA AND AAC				
CR-1: Construction of conservation measures from water conservation program: Less than significant impact with mitigation.	Continuation of existing conditions.	A2-CR-1: Construction of conservation measures from water conservation program: Less than significant impact with mitigation.	A3-CR-1: Construction of conservation measures from water conservation program: Less than significant with mitigation.	No impact.
CR-2: Construction of conservation measures for IOP compliance: Less than significant impact with mitigation.	Continuation of existing conditions.	Same as HCP-CR-2.	Same as HCP-CR-2.	No impact.
HCP-IID-CR-3: Creation of managed habitat: Less than significant impact with mitigation.	Continuation of existing conditions.	Same as HCP-IID-CR-3.	Same as HCP- IID-CR-3.	Same as HCP- IID-CR-3.
SALTON SEA				
CR-4: Reduced inflows to the Salton Sea: Less than significant impact with mitigation.	Construction of Baseline conditions.	A2-CR-2: Reduced inflows to the Salton Sea: Less than significant impact with mitigation.	A3-CR-2: Reduced inflows to the Salton Sea: Less than significant with mitigation.	A4-CR-1: Reduced inflows to the Salton Sea: Less than significant impact with mitigation.
SDCWA SERVICE AREA				
No impact.	Continuation of Baseline conditions.	No impact.	No impact.	No impact.

¹ Programmatic level analyses of USFWS' biological conservation measures in LCR subregion are not summarized in the table because no significance determinations have been made. Subsequent environmental documentation will be required if potential impacts are identified.

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the NRHP. The American Indian Religious Freedom Act of 1978 allows access to sites of religious importance to Native Americans. The Native American Graves Protection and Repatriation Act of 1990

provides standards and procedures for disposition or repatriation, as appropriate, of cultural items, including human remains.

Several federal laws include paleontological resources within their scope. Federal agencies are required under NEPA to consider impacts to historical, cultural, and natural aspects of the environment. FLPMA specifies that public lands should be managed in a manner that protects the quality of scientific resources. The BLM considers all vertebrate and some scientifically important invertebrate species to be significant, nonrenewable resources (Cunkelman 1999). Fossil resources on BLM land are regulated by three statutes/regulations (FLPMA, Federal Caves Resources Protection Act of 1988, and Crimes and Criminal Procedures 18 USC 641). Permits are required to collect or disturb vertebrate fossils on BLM land. Reclamation must adhere to statutes (18 USC 641, PL 100-691) that prohibit collecting fossils or destroying cave resources. Secretarial Order 3104 grants Reclamation the authority to issue paleontological resource use permits for lands under its jurisdiction.

3.8.2.2 State Standards and Regulations

Archaeological and architectural resources (buildings and structures) are protected on the state level by CEQA. CEQA requires state agencies to consider the effects of their actions on historically significant resources, i.e., resources that meet the criteria for listing in the California Register of Historical Resources (CRHR) or a local register of historical resources. Criteria for inclusion in the CRHR are provided in Section 15064.5 of CEQA and are similar to the criteria for inclusion in the NRHP described above. CEQA also contains provisions (in the PRC) for the discovery of human remains that are of Native American origin.

CEQA requires state agencies to consider the effects of their projects on all aspects of the physical conditions that exist within the area affected by the Proposed Project, including paleontological resources. Appendix G of CEQA states that a project may be deemed to have a significant effect on the environment if it will disrupt or adversely affect a paleontological site, except as part of a scientific study. CEQA standards and regulations apply to two geographic subregions that are included in this analysis (IID water service area and Salton Sea).

3.8.2.3 Local Standards and Regulations

CEQA requires state agencies to consider the effects of their actions on historically significant resources, which include those listed in a local register of historical resources. This would apply to two geographic subregions: IID water service area and AAC, and Salton Sea.

3.8.3 Existing Setting

The following sections describe the existing cultural resources setting of the LCR, IID water service area, and Salton Sea geographic subregions.

3.8.3.1 Physical Cultural Resources Environment

The Colorado Desert is located in the Salton Trough, which is a massive graben formed by the interface of parts of the North American and Pacific plates (Figure 3.8-1). The trough formed by the ongoing movement of these faults and the general subduction of the basement formations has been filled by immense quantities of colluvial and alluvial

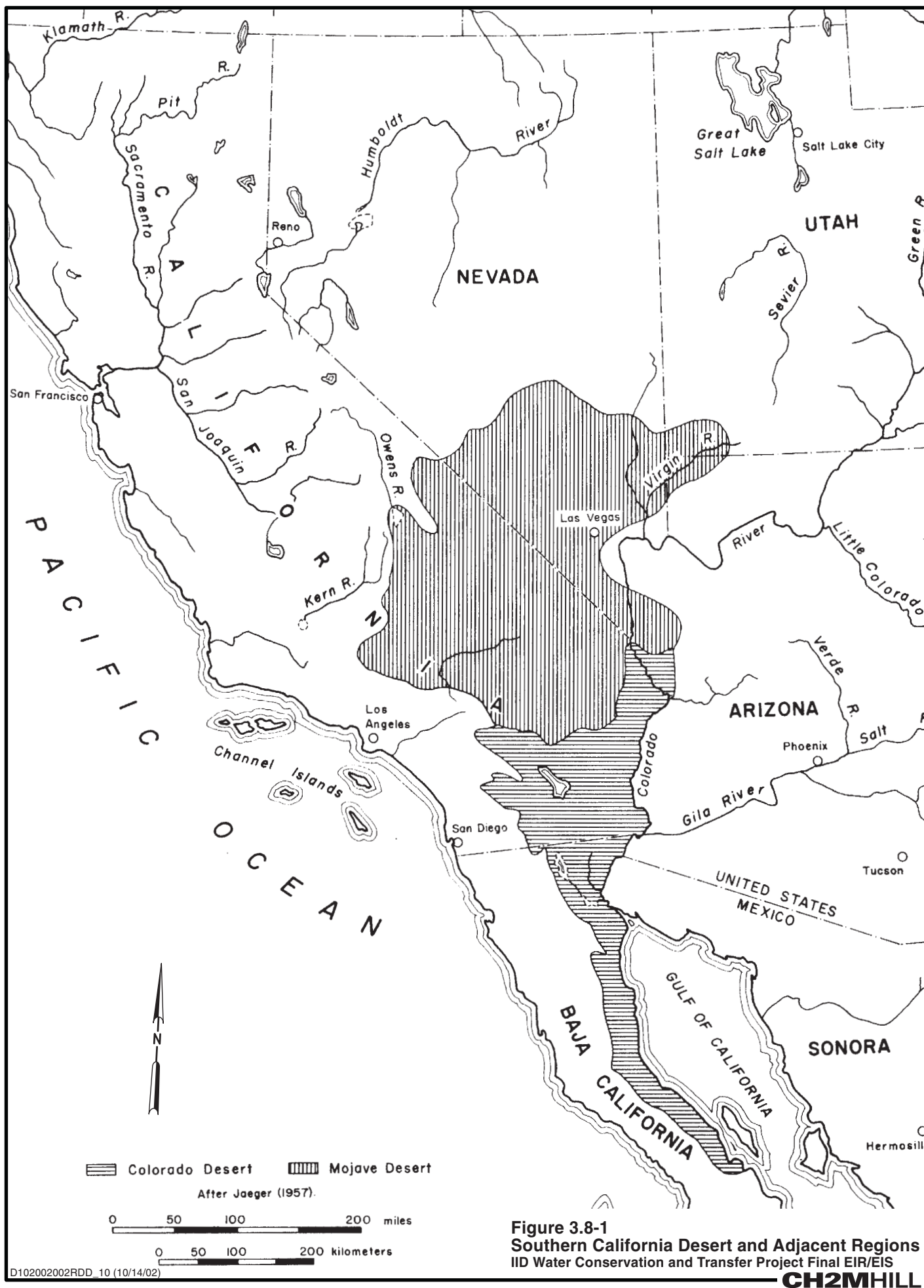


Figure 3.8-1
Southern California Desert and Adjacent Regions
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sediments that in places are up to 20,000 feet deep (Morton 1977). Ancient river meandering reworked these sediments. Where the Colorado River empties into the Gulf of Mexico, finer sediments are released onto a vast and growing delta while coarser materials fall out along the bed and nearby floodplains of the River. The trough is being constantly filled with sediments as it deepens while portions of the Imperial Valley remain well below sea level.

Before dams controlled the flows of the Colorado River, deposited sediment in the lower channels of the delta encouraged local flooding that dropped even more sediments on the fan. Gradual silt accumulation raised the delta and lowered stream-channel margins above the average grade of the main River channel to the north, resulting in an impoundment. This happened frequently after large flood events when the receding waters of the Colorado were unable to find a route back through the newly reworked delta. Then, rapid filling of the trough by the Colorado resulted in the formation of a vast freshwater lake. The filling generally continued until the impounding delta was breached (often after many decades or centuries).

While they lasted, these lakestands became the center of flourishing plant and animal communities that attracted peoples from around the region (Schaefer 1998). Past lakes in the trough included the ancient Blake Sea, Lake LeConte, and Lake Cahuilla. The typical late Holocene lakestands are marked by beach formations about 40 feet above sea level. Ancient late Pleistocene or early Holocene high stands extended as much as 100 feet above sea level.

While summer storms can be violent, most rainfall in the Colorado Desert comes in mid-winter. Because of sparse vegetation, summer storm runoff is typically severe, particularly in the large portions of the central Salton Basin, which is characterized by hard lacustrine clays. Consequently, few permanent water sources are found although seasonal springs and wells associated with localized aquifers are present. In some places, freshwater and alkaline springs nourish wetlands in the middle of an otherwise arid desert; these areas hosted major prehistoric occupation. The most dominant lacustrine feature was Lake Cahuilla, a large, extensive freshwater lake that filled the northern part of the Salton Trough for several thousand years. Lake Cahuilla, too, attracted prehistoric occupation and use for long time periods.

Most closed desert basin floors are characterized by an Alkali Sink plant community. In prehistoric times, in some parts of the Salton Basin and low-lying spots in the Proposed Project vicinity, deep-rooted mesquite was able to tap the shallow water table and grow abundantly. Most of the Salton Basin floor has been turned over to agriculture or has been inundated by the Salton Sea. Today, local plant communities are dominated by creosote-bursage scrub that occurs over most of the lower Colorado Desert alluvial terraces and floors. In non-cultivated areas, common plants include creosote bush (*Larrea tridentata*), brittlebush (*Encelia frutescens*), ocotillo (*Fouquieria splendens*), and bursage (*Ambrosia dumosa*).

Geology/Geomorphology. The ancient shoreline of Lake Cahuilla nearly surrounds the Salton Trough (Figure 3.8-2). On the surface, the Salton Trough province exhibits ancient lakebed sediments, alluvial channels, and dune sands. The central portion (Imperial and Coachella Valleys, Salton Sink) is covered by clay and silt deposits from the prehistoric lakestands. Shoreline deposits circumscribe the central lakebed deposits and consist mostly of unconsolidated sand and gravel, grading into silts and clays. During the Late Prehistoric period, Lake Cahuilla stretched from north of Indio to south of Mexicali. The Colorado fed

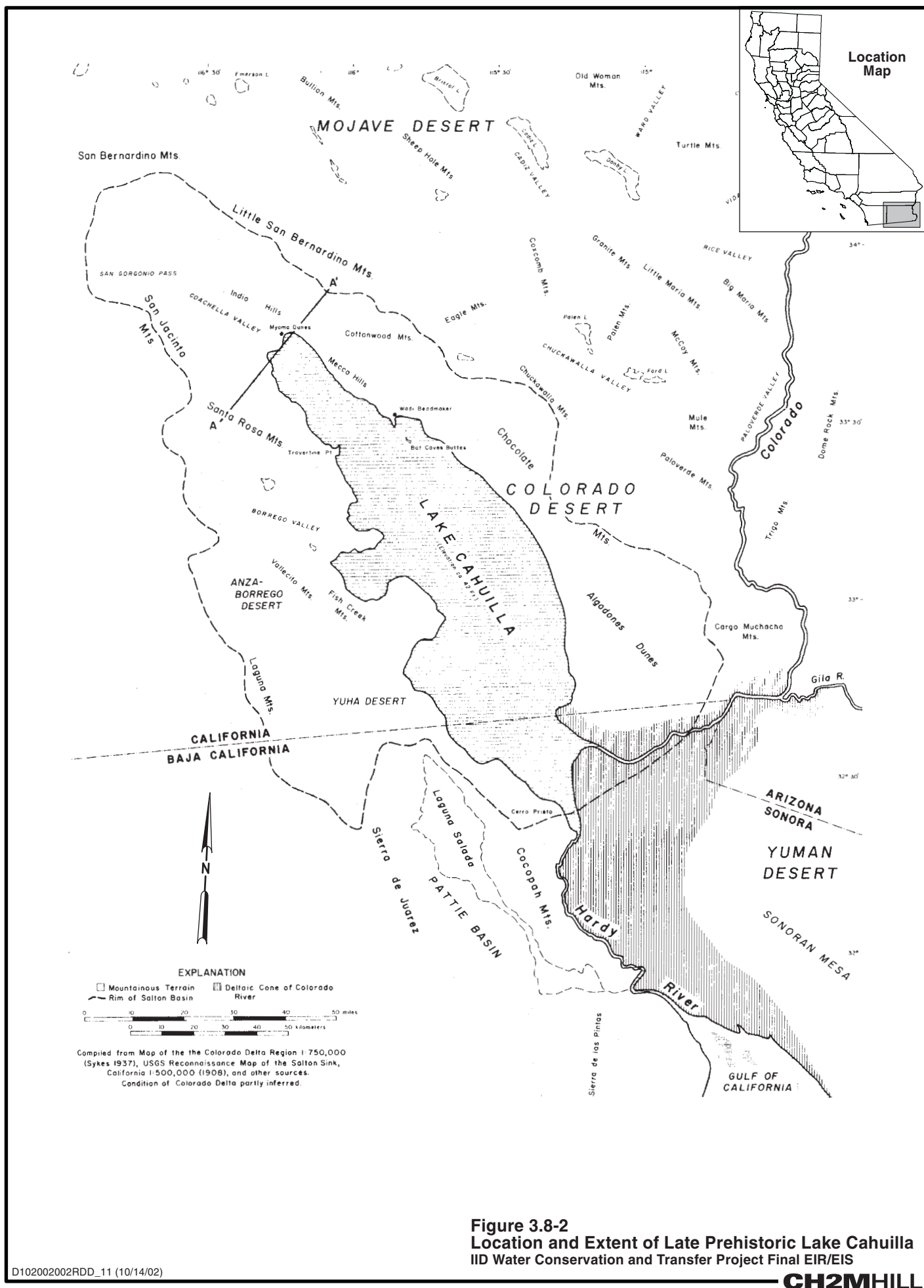


Figure 3.8-2
Location and Extent of Late Prehistoric Lake Cahuilla
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it, and, when full, it spilled southward to the Colorado delta and the Gulf of California (Laylander 1995).

A cooler, more humid environment most likely existed when Lake Cahuilla was full. Radiocarbon dating suggests a late Holocene age of between 1600 and 400 years ago. Repeated fillings of the basin to capacity suggest at least three lacustral intervals of the lake; however, these lakes must have been transient and unreliable resources because little Archaic Period (Amargosan) archaeological material has been found in the Salton Trough (Gallegos 1980). Wilke (1978) proposed at least three lacustral intervals and Gallegos (1980) suggested at least four lake filling periods. Recently, Laylander (1995) established the existence of a substantial stand for the lake in the 17th Century AD.

Colorado incursions into the Salton Trough occurred in 1840, 1842, 1852, 1859, 1862, 1867, and 1891. During the 1862 summer flood, the mail stage between Yuma and San Diego was interrupted; for several weeks, a flat boat was used to cross the New River. During the summer of 1891, water filled the Sink and formed a lake several miles long (Gallegos 1980). The most recent flooding occurred between 1904 and 1907, when the Colorado entered the irrigation system leading to the Sink. In the winter of 1904-05, floodwaters from the Colorado and Gila Rivers combined, producing an abnormally high discharge, which flowed through an unprotected headgate and down the steeper grade of the canal. The canal and tributary channels began to cut and enlarge. By 1905, almost the entire Colorado discharge was flowing into the Salton Trough. The Colorado was finally returned to its channel in early 1907, but not before the Salton Sea was formed (Sykes 1914).

GeoArchaeology/Modern Geomorphology. Von Werlhof (1974) evaluated the archaeological potential of the Imperial Valley from the perspective of modern geomorphological changes that occurred in the early 20th century. His main finding is that early 20th Century settlers had seen artifacts (portable mortars and pestles, metates and manos, projectile points, knives, scrapers, and hearthstones) at an undetermined number of temporary campsites along the old wash prior to the 1906 flood. The flood destroyed such evidence as the wash became New River, and collectors obliterated what other evidence of Indian habitats that might have existed nearby. The lack of depth to aboriginal sites in the valley, coupled with extensive land developments in historic times, render dim the prospects of discovering archaeological sites in this large region. Nonetheless, a possibility exists, regardless of how remote, that some sites escaped molesting or destruction.

3.8.3.2 Cultural Resources Background and Context

Prehistoric Context. About 20,000 years ago, people lived along the coast, and left flint scrapers and choppers made of pebbles. About 10,000 years later, in the cool, pluvial, terminal Pleistocene and early Holocene epochs, other relatively unspecialized bands exploited particular niches for food. While coastal shell middens attest to intensive fishing and shell fish gathering, inland campsites provide evidence for Big Game hunting. Animals were dismembered with heavy stone choppers, and their hides were processed with flint scrapers. Their tools appear in campsites between the coast and former lakes and marshes in the present Mojave and Colorado deserts (Luomala 1978).

As the glaciers retreated and people adapted to ever drier, hotter weather, the topography itself gradually changed from marshes and streams to deserts. Early sites of the Desert

Tradition show increasing reliance on wild plant foods, especially seeds to be parched or nuts and even bones to be ground into flour. Small, chipped-stone projectile points for darts are evidence, as are later arrow points, that meat mostly came from small game (Luomala 1978). By about AD 600, two great changes modified the collecting-hunting traditions: LCR peoples (probably inspired by indirect contact with Middle American horticulture) began to plant maize, beans, and gourds in floodplains, and make pottery.

Schaefer, et al. (1998), reviewed several overviews and resyntheses of Colorado Desert culture history (Rogers 1939, 1945, 1966; Weide and Barker 1974; Crabtree 1981; Gallegos 1980; and Schaefer 1994b) to develop a culture sequence. Six successive periods, each with distinctive cultural patterns, are defined for the Colorado Desert, extending back over 12,000 years: Early Man (Malpais), PaleoIndian (San Dieguito), Archaic (Pinto and Amargosa), Late Prehistoric (Patayan), Historic Yuman, and Historic Euro-American. Historic Yuman and Historic Euro-American periods are reviewed separately below (“Ethnographic Context” and “Historic Context”).

Early Man (Malpais) Pattern (50,000 to 12,000 years BP). The Malpais pattern is a complex of archaeological material believed to date from 12,000 to 50,000 years BP (Begole 1973, 1976; Davis et al. 1980; Hayden 1976). Rogers (1939, 1966) used the term Malpais for ancient-looking cleared circles, heavily varnished chopping and scraping tools, and rock alignments he later classified as San Dieguito I. Dating remains from this period has been problematic (McGuire and Schiffer 1982). Redating the Yuha Man cast doubt on early settlement of the Colorado Desert. Originally dated to over 20,000 years BP based on radiocarbon dating of caliche, accelerator mass spectrometry dates on bone fragments now date “Yuha Man” to only 5,000 years BP (Taylor et al. 1985).

PaleoIndian Period (San Dieguito) (12,000 to 7,000 years BP). Most non-ceramic lithic assemblages, rock features, and cleared circles are assigned to the San Dieguito Complex, Phase III and most Colorado Desert sites are assumed to be San Dieguito. Rogers (1939, 1966) first defined this complex as consisting of three phases, with each phase characterized by the addition of new, more sophisticated tool types to the pre-existing tool kit. San Dieguito technology is based on primary and secondary percussion flaking of cores and flakes. San Dieguito I and II phase tools include bifacial and unifacially reduced chopping tools, concave-edged scrapers (spoke shaves), bilateral-notched pebbles and scraper planes. Appearing in the San Dieguito II are finely-made blades, smaller bifacial points, and a larger variety of scrapers and choppers. The San Dieguito III tool kit is appreciably more diverse, with fine pressure flaked tools such as blades, leaf-shaped projectile points, scraper planes, plano-convex scrapers, crescentrics (amulets), and elongated bifacial knives (Rogers 1939, 1958, 1966; Warren and True 1961; Warren 1967).

San Dieguito culture was a hunter-gatherer adaptation comprising small, mobile bands exploiting small and large game, and collecting seasonally available wild plants. Some believe the absence of groundstone reflects a lack of hard nuts and seeds in the diet, and is a cultural marker separating the San Dieguito culture from the later Desert Archaic culture (Rogers 1966; Warren 1967; Moratto 1984). Portable manos and metates are now being found in coastal sites radiocarbon dated in excess of 8000 BP and in association with late San Dieguito (III) adaptation.

Archaic Period (Pinto and Amargosa) (7,000 to 1,500 years BP). The Pinto and Amargosa Complexes were regional specializations within the existent hunting and gathering adaptations that characterized the Archaic Period. These complexes occur more frequently in the northern Great Basin, Mojave Desert, and the Sonoran Desert east of the Colorado. Few Pinto or Amargosa (Elko series) projectile points have been found on the desert pavements in the Colorado Desert. The desert environment was unstable at this time, especially during the Altithermal Period of 7,000 and 4,000 years BP, which forced the mobile hunter-gatherers into more hospitable regions (Crabtree 1981, Schaefer 1994a, Weide and Barker 1974). Indian Hill Rockshelter in Anza-Borrego Desert State Park contained 1.5 meters of deposits *below* a Late Prehistoric component (McDonald 1992). Eleven rock-lined cache pits and numerous hearths indicate a residential base or temporary camp in which food storage was integral to the hunting and gathering subsistence and settlement strategy. Numerous Elko-Eared dart points, flaked and milling stone tools, and three burials were recovered. Similar finds were made at a small rockshelter in Tahquitz Canyon (Bean, et al. 1995). More recently a late Archaic Period campsite was identified in 8-meter-deep dune deposits adjacent to the north Lake Cahuilla shoreline (Love 1996). Radiocarbon dates and associated avian and fish remains confirm a Late Archaic Period Lake Cahuilla occupation. Additional Archaic sites certainly lie buried under alluvial fans and wash deposits, sand dunes, and Lake Cahuilla sediments.

Late Prehistoric Period (Patayan) (1,500 to 100 years BP). The Patayan is divided into four phases, including a pre-ceramic transitional phase from 1,500 to 1,200 years BP. Major innovations include introduction of paddle-and-anvil pottery making around 1,200 years BP and the introduction of floodplain agriculture (Rogers 1945, Schroeder 1979). These advancements were introduced from Mexico or through the Hohokam of the Gila River (Schroeder 1975, 1979, Rogers 1945, McGuire and Schiffer 1982). The flooding of Lake Cahuilla corresponds to Patayan II, 950 to 300 years BP. Previous studies suggest the final Lake Cahuilla recession occurred around A.D. 1500, but recent research reveals a fifth infilling between A.D. 1600 - 1700 (Schaefer 1994 [1994a]; Laylander 1995).

Major excavations along the east side of Lake Cahuilla (Gallegos 1980, 1986; von Werlhof and McNitt 1980, von Werlhof et al. 1979) revealed desert peoples (A.D. 1000 - 1700) shifting their focus from the Colorado floodplains to a more mobile, diversified resource procurement pattern with increased travel between the Colorado and Lake Cahuilla (Pendleton 1984). Major temporary camps and smaller resource collection sites were established around marshy embayments and open stretches of the shoreline to fish, hunt waterfowl and rabbits, and to exploit mesquite and other resources in the sand dunes. Long-range travel to special resource collection zones, trading expeditions, and possibly some warfare, are reflected by the numerous trails throughout the Colorado Desert. These trails are often found associated with pot drops and trailside shrines.

Many pictographs, petroglyphs, geoglyphs, and bedrock grinding surfaces in the Colorado Desert are associated with the Patayan, although direct dating and cultural affiliation of such features is difficult to determine. In the Patayan, and possibly in the Archaic, specific volcanic and sandstone rock outcrops along the Colorado and Gila Rivers were exploited for the manufacture of stone pestles and portable milling slabs (Schneider 1993, 1994) but all groups used ironwood mortars and pestles. When Lake Cahuilla dried up, Patayan III

emerged with returned reliance on the Colorado floodplain and some floodplain agriculture along the New and Alamo Rivers in a mixed horticulture/hunter-gatherer economy.

Ethnographic Context. Ethnohistorically documented tribes living in the three geographic subregions include the Quechan (LCR and around the AAC), the Kamia (IID water service area and part of the Salton Sea geographic subregion) and the Cahuilla (Salton Sea geographic subregion and southern Coachella Valley; Figure 3.8-3). The Cocopah, located south of Yuma, were first contacted by Europeans. Their 19th Century village, which was ethnohistorically recorded, was located east of Calexico-Mexicali. The Quechan have been described by Kroeber (1920) and Forde (1931); the Kamia (or eastern Kumeyaay) by Gifford (1931), Knack (1981) and Spier (1923); and the Cahuilla by Barrows (1900), Bean (1972), Bean and Saubel (1972), Curtis (1926), Drucker (1937), Heizer (1974), Hooper (1920), Kroeber (1908), and Strong (1929).

Quechan. The Quechan inhabited the LCR and part of the AAC vicinity. Their traditional economy was a mix of floodplain horticulture, fishing, and hunting-gathering, as detailed by Castetter and Bell (1951). The Quechan are a Yuman-speaking group with linguistic and cultural ties to the Cochimi, Cocopah, Halyikwamai, Kohuana, Kumeyaay, Kiliwa, Walapai, Havasupai, Yavapai, Halchidhoma, Maricopa, and Mohave (Forde 1931, Kroeber 1920). Friendly with the Kumeyaay, Yavapai, Papago and Mohave, they were traditional enemies of the Cocopah and Maricopa, but got along poorly with the Cahuilla. Between 1780 and 1850, the Quechan experienced lengthy hostilities with the Halchidhoma, resulting in the ultimate displacement of the Halchidhoma from the Colorado to the middle Gila River.

The Quechan lived in dispersed settlements along the Colorado and lower Gila and today, the 33,000-acre Fort Yuma Indian Reservation¹ remains the center of cultural and political life for the 3,000-plus members of the Quechan Nation (Bee 1981, 1983, 1989). Pilot Knob, located near the beginning of the AAC, is the Quechan sacred site, *Avikwalal*. Pilot Knob was the first stop in a four-day ceremonial journey up the Colorado to the creation site at *Avikwame*, near Needles. This symbolic journey, with four major stops, was undertaken in a special *keruk* or memorial ceremony held in remembrance of the first creation given by the culture-giver, *Kumastamxo*, for his father the creator, *Kikumut*. This ceremony was held every four or five years to commemorate the people who had died since the last *keruk* (Raven and Raven 1986; Ezzo and Altschul 1993; Altschul and Ezzo 1994).

Kumeyaay/Kamia. South of the Salton Sea was home to the Kamia (a subdivision of the Kumeyaay), a sedentary agricultural people related culturally to the River Yumans. Their territory extended southward to the Colorado delta below the International Line in Baja California. Their territory's eastern boundary was east of the sand dunes near the eastern shore of the Salton Sea (Figure 3.8-4). It included the New and Alamo Rivers, and innumerable temporary sloughs and shallow lakes (Van Camp 1979). The Indians who occupied the Imperial Valley area at Spanish Contact were the Tipai and Ipai (Kroeber 1925; Luomala 1978; Spier 1923) who use the term Kumeyaay for their tribal name. Until the 1960s, ethnographers used the term Diegueno for these peoples. Since contact, the Kumeyaay gradually acculturated; they no longer practice many of their traditions. Many

¹ The boundary of the Fort Yuma Indian Reservation, hence its acreage, is currently in litigation before the Special Master in *Arizona v. California*, US Supreme Court Case No. 8, Original.

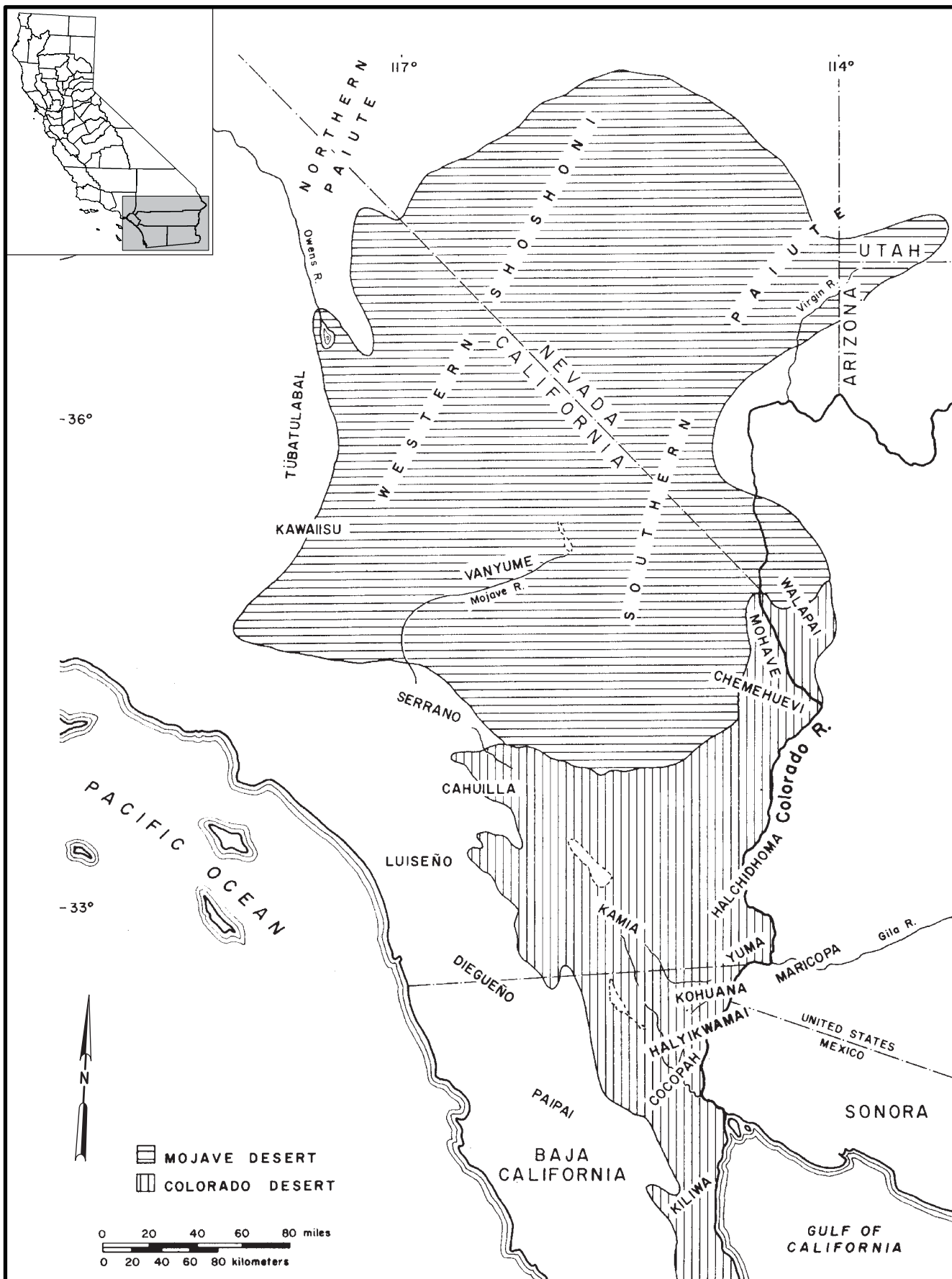


Figure 3.8-3
Historic Tribes of California Desert and Adjacent Regions
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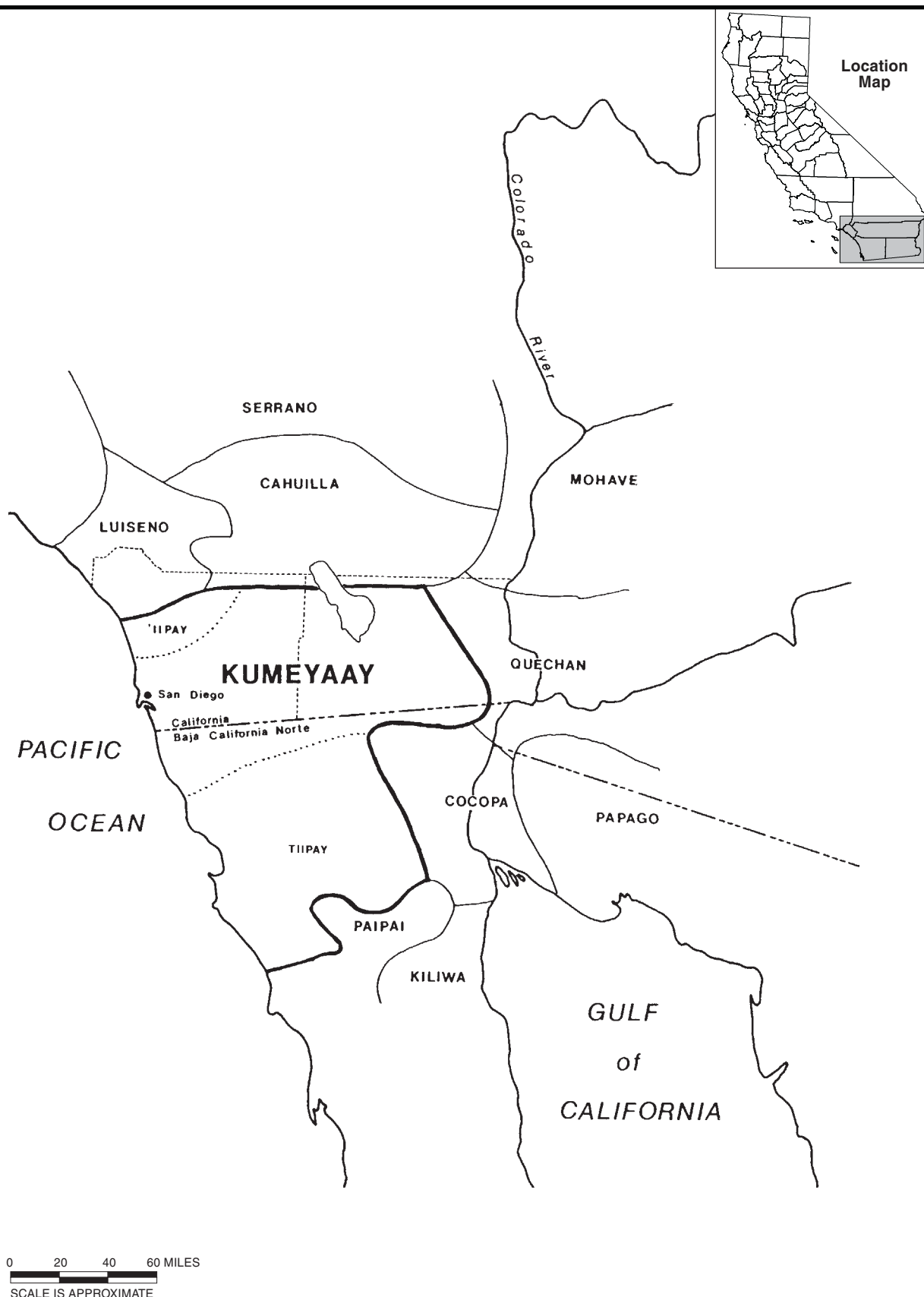


Figure 3.8-4
Location of the Kumeyaay and Their Neighbors
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bands and once-autonomous tribelets were combined by the government to form a larger group that was placed on reservations throughout San Diego County.

By the late 19th and early 20th centuries, Kamia society had disintegrated from disease, assimilation, and warfare. Kumeyaay descriptions from early European contact to the present are preserved in the writings of explorers, soldiers, settlers, ethnographers, and Indians. From these works, a rather complete picture of protohistoric native lifeways has been recreated by Barrows (1900), Gifford (1918, 1931 and 1934), Hooper (1920), Strong (1929), Heizer and Whipple (1957), Kroeber (1925), and Phillips (1975).

Kumeyaay were seasonal hunters and gatherers (and occasional agriculturists) who used all major ecological zones at various times of the year, including the coast and its maritime resources, the mountain oaks and piñon, and the desert foothill agave and mesquite. The Salton Sea and the Laguna Salada area were desert oases during some portions of the year. They were used to grow beans, corn, and squash whenever the floodwaters of the Colorado River backed up into the area through various overflow channels, such as the New and Alamo Rivers. While the Kumeyaay have been depicted as hunter/gatherers in ethnographic documents, some groups practiced agriculture in the Imperial Valley (Gifford 1931). Shipek (1989) suggested that horticultural practices among the Kumeyaay were widespread and intensive, involving transplantation and cultivation of several native plant species.

Most groups had a mountain home base that provided acorns, greens, fruits, and abundant game. Each group operated out of its home base for most of the year. Seasonal campsites were scattered throughout their territory and used as needed, but their central villages were larger and permanently situated (see Schaefer 1998 for Kumeyaay settlement patterns and Luomala 1978 and Spier 1923 for traditional Kumeyaay mountain dwellings). Lands along New River belonged to individuals and/or families who cleared and leveled them, built dams and levees, and maintained canals. Any Kumeyaay from any band (coastal, foothill, or mountain), could acquire New River floodplain land by clearing additional land, helping to build dams, and extending the levee and canal system to the newly cleared land (Shipek 1982). The easternmost *Tipais* lived along sloughs such as New River, and in the adjoining desert (Luomala 1978). A Kumeyaay tribelet referred to as the *lya'tcarp*, lived on the west side of the New River (Spier 1923).

Desert Cahuilla. The northern part of the Salton Sea was home to the Desert Cahuilla (Strong 1929; James 1969) who practiced some agriculture (Bean and Saubel 1972). Shipek (1982) puts their southern border at San Felipe Creek while Strong (1929) puts the border between the Cahuilla and Kumeyaay around the Riverside/Imperial County line.

The Cahuilla are a Takic-speaking group that occupied northwestern Imperial and Riverside Counties. Desert Cahuilla society was set up with a dozen or more land-holding clans, each with territory that ranged from desert or valley floor to mountain areas within which several biotic zones could be exploited. Each clan included several lineages, each with an independent community area it owned within a larger clan area. Each lineage had ownership rights to various hunting and gathering areas. Cahuilla clans varied in size but some numbered up to several thousand people. Clans were arranged so each lineage/community had access to water and food resources. Within each community, houses and structures were placed at some distance from each other; often a community

would be spread over a mile or two, with each nuclear and extended family having houses and associated structures for storage of food, and shaded work places to manufacture tools and process food (Schaefer 1998). Hilly, rocky areas, cave sites, or walled cave sites were used for temporary camping, food storage, hunting blinds, and as fasting places for shamans.

The Torres-Martinez were contacted as early as 1797, but their more western relatives were contacted by the Spanish some years earlier. Runaway mission neophytes probably sought refuge among the desert tribes. By 1823, the Cahuilla were familiar with Hispanic lifeways and comfortable operating with them. At that time, Mexicans were running livestock through the San Geronimo Pass as far as Palm Springs. The 1823 Romero expedition reported that the Cahuilla at Toro were growing corn and melons and were already familiar with the use of horses and cattle (Schaefer 1998). In 1851, the Cahuilla and Luiseno leaders signed a treaty that was never ratified by Congress. In the 1860s, epidemic disease virtually wiped out the Cahuilla and survivors of decimated lineages and clans joined villages to maintain their ceremonial, cultural, and economic institutions (Schaefer 1998).

Cahuilla Indians from Torres-Martinez and Cabazon villages helped build the Southern Pacific Railroad in 1877, even as their (and Quechan) traditional lands were taken away by the US government and given to the railroad, with only a small portion provided to them as reservations. By 1891, the Cahuilla and other Indians were firmly settled on local reservations; the Torres-Martinez Reservation was established by an Executive Order in 1876. In 1903 another 640 acres of state lands were added to the reservation. The present area under trust is about 14,000 acres. In 1991, 192 people were living on the reservation, and 57 were living adjacent to the reservation (Schaefer 1998). The Cabazon Reservation was established near Indio by an Executive Order in 1876. In 1895, the area was increased by an Act passed in 1891. Around 1923, 60 to 70 acres of the reservation were under irrigated cultivation. By 1991, the reservation totaled 1,382 acres. At that time, the BIA had listed the Cabazon population as 17 within the reservation, and 8 adjacent (Schaefer 1998).

Historic Context. When settlers filled up Kumeyaay gathering areas, and conducted aggressive and violent acts against them, the starving and demoralized Kumeyaay broke up and dispersed. Some moved to the Colorado River Basin to live among the Quechan, while others moved into Baja California. Others accommodated themselves to Caucasian patterns at a very impoverished level. They often hired out as migratory workers on ranches and as domestic workers in the towns. When most the Kumeyaay were impounded on reservations in 1870, much of their culture was obliterated, except in the memories of the older generation (Van Camp 1979). Luomala (1978) presented a detailed account of Kumeyaay struggles in the late 19th and early 20th centuries; a few salient points are noted below.

The Kumeyaay remained within their protohistoric boundaries during successive Spanish, Mexican, and Anglo-American control. Of all mission tribes in the Californias, the *Tipais* and *Ipais* most stubbornly and violently resisted Franciscan and Dominican control. In 1834, Mexico secularized the missions. To make them Mexican farmers and colonists, Indians were to get half the mission lands, but only to use, and were to work on community projects. Those receiving lots soon lost them as secular administrators, who (ignoring their responsibility to the Indians) functioned like feudal lords. *Ipais* and *Tipais* became serfs, trespassers on ancestral lands, rebels, or mountain fugitives (Luomala 1978). Throughout the 20th Century, the Kumeyaay continued to struggle for justice and to preserve and protect

their First Nation sovereignty and the resources necessary for their economic independence (Viejas Band of Kumeyaay [no date]).

At the time of Spanish contact, the Desert Cahuilla lived in the San Geronimo Pass, the Coachella Valley eastward to the middle of the present Salton Sea, and the San Jacinto and Santa Rosa mountains. Spanish contact with desert Cahuilla groups in the Coachella Valley first occurred in December 1823, when Captain Romero found Indians living near Thermal, growing corn, pumpkins, melons, and watermelons (Bean and Saubel 1972). In 1853, Lt. Williamson crossed the Colorado Desert, south of Agua Caliente (Palm Springs), and observed the remains of an Indian brush-house and the stubble of a barley field. South of Indian Wells, Indians anxious to trade corn, melons, squash, and barley met Williamson's surveyors. Near Thermal, Williamson reported the Indians had good stores of grain and melons. Although melons, wheat, and barley are European introductions, they were well integrated into the Indian agricultural complex prior to contact (Bean and Saubel 1972).

Historic Context of Indian Agriculture. The Kumeyaay and Cahuilla were the first to struggle with water supply and conservation issues; their story helps frame expectations of the types and distributions of cultural resource sites that might be present beneath the waters of the Salton Sea or within the irrigated farmlands of the Imperial Valley. According to Lawton and Bean (1968) and Bean and Saubel (1972), Indian crop-growing in the arid desert became possible only after the introduction of ditch irrigation by the Spanish, because the Colorado River tribes to the east of the Cahuilla relied mostly on floodwater farming. But on the Colorado Desert, no native streams or readily procurable surface water existed. Native desert agriculture might have been helped by occasional rains, but it could not have been dependent on rainfall. (However, several geological features helped to compensate for the lack of water.) While no streams flowed year round, the valley floor has an underlying aquifer that collects and stores runoff from the surrounding mountains. This artesian basin extends from near Indian Wells to the Salton Sea. At certain places, faults in impermeable strata occur that, during the early historic period, allowed water to flow upward in some places, keeping it near the surface. In historic times, at least five natural and artificial water-utilization techniques were employed to grow crops (Bean and Saubel 1972):

- Dry farming ("temporales") agriculture, which was dependent on rainfall in excess of 8 inches annually.
- Conventional irrigation by ditches from wells, springs, streams, and small impoundments.
- Diversion of artesian flow so that it flooded and soaked gardens prior to planting.
- Runoff farming, or the exploitation of small rainfall catchment basins with soil-moisture storage capacity.
- Pot irrigation.

As Bean and Saubel (1972) described Williamson (1856) reported that the Cahuilla deepened and enlarged springs. Near Thermal, Williamson (1856) found a pool 20 feet or more in diameter at a Cahuilla *rancheria*, which had been "created by an artificial embankment three or four feet high." Both the Cahuilla and their Kamia neighbors perfected a highly sophisticated water supply technique - the water well. A Cahuilla well reported by Romero (Bean and Mason

1962) in 1823 had a depth of about 15 feet. These wells were great pits dug into the desert sands. Terraced steps make it possible for a woman with an olla (jar) to descend to the bottom and dip up water (an even earlier account of water wells comes from the Anza Expedition).

As reported by Glendenning (1951), in the later 19th Century, before settlers lowered the water table by drilling hundreds of wells in the Coachella Valley, many seepy areas existed in the artesian section. Early historic period reports indicate marshy areas in parts of the valley were created by breakthrough in artesian flow. As reported by Strong (1929), agricultural plots were cultivated in four Cahuilla villages around 1850, and natural seepage was recalled as the water source for crops at one of these villages. Lawton and Bean (Bean and Saubel 1972) conclude: Another technique, runoff farming, required a relatively large natural watershed area, which concentrates its rainfall into a small catchment basin, usually amounting to about an acre or less (Bean and Saubel 1972). To accomplish pot irrigation, young girls were sent to fill earthen jars with water, which were then brought back and used to sprinkle on vegetable crops. The development of well-digging among the desert Cahuilla is suggestive of pot irrigation.

Lawton and Bean's (Bean and Saubel 1972) Lake Cahuilla hypothesis suggests the way in which the present Salton Sea basin was used by prehistoric Indians. In precontact times, after the formation of Lake Cahuilla, certain Yuman groups moved in and settled around the lakeshore. The fresh-water Sea existed from about 900 to 1500 A.D. When the Colorado shifted course to the Gulf of California, the Sea began to dry up, probably at a rate of 5 feet per year. The lake would have produced a water table that would have supplied surface soil moisture by capillary action in irregular areas along the changing shore. This arable land would have been relatively free of salinity. Several Cahuilla myths make mention of the lake and the tribal dislocations that occurred among the Cahuilla as a result of its formation. The Cahuilla probably emulated the Yumans in planting around the shores of the lake, only to discover later, as the lake subsided, the existence of occasional seepage areas, natural catchment basins, and other favorable micro-niches. These discoveries made it possible to plant crops season after season without conventional irrigation.

As discussed later, reduction in the surface elevation of the Salton Sea through reduced inflows generated by project conservation measures might expose former Cahuilla Indian farmlands and associated archaeological sites. James (1969) provides an example of the kinds of resources that might be exposed if the Salton Sea were to shrink:

The most southerly of the Desert Cahuilla villages was located at Fish Springs near the northern end of the Salton Sea. This village was called *Tuva* and it belonged to the clan of one of the best-known Cahuilla Indians, Fig Tree John. We believe he did not live at Tuva but near springs a few miles to the northwest. These springs later came to be known as Fig Tree John Springs and were so designated on the Geological Survey Map of the period. When this spot was flooded by the Salton Sea, Fig Tree John and his people moved to Agua Dulce Springs where they re-established their village. Unfortunately Agua Dulce Springs soon became known as Fig Tree John Springs, too, and this duplication of names has resulted in serious confusion in the identification of village sites in this particular area.

Historic Context of Euroamerican Agriculture. Certainly, by the time settlers entered the area, Lake Cahuilla had disappeared and Indian agricultural practices probably occurred as described above. From the settlers' perspective, the Proposed Project area was a desert and

only in need of large-scale irrigation to make it flourish. The story of the conversion of the area into a productive agricultural region is detailed by Frisby (1993). Spreading farms attracted the opening of service centers, some of which arose into the modern urban communities that today dot the Imperial Valley. But in the 19th Century, Imperial Valley held little attraction for settlers, except for two main stagecoach routes through the valley along the Southern Emigrant Trail and the Alternate Eastern Route to San Diego.

In 1849, while crossing the Colorado Desert enroute to San Francisco and the gold fields, Dr. O.M. Wozencroft was probably the first to conceive of diverting Colorado River water to irrigate desert lands. Although Wozencroft died in 1887, several others shared his dream and by 1895, several water appropriations were filed to divert Colorado River water to irrigate lands in “that portion of San Diego County known as New River Country.”

In the later half of the 19th Century, attempts were made to irrigate and develop the Imperial Valley, but these efforts lacked adequate financing and suffered from water and governmental restrictions. Charles R. Rockwood and George Chaffey, both experienced water engineers, organized the California Development Company in 1896 to entice settlers; the developers called the newly irrigated area the Imperial Valley.

In early 1900, surveys were conducted to find a suitable canal route from the Colorado River to the Imperial Valley, and the Imperial Land Company (ILC) was formed as a subsidiary of the California Development Company (CDC). ILC was to promote agricultural development of the Imperial Valley and attract settlers, who would claim government land under the Desert Land Act. The CDC successfully brought irrigation water to Imperial Valley in 1901 by opening up the Alamo Canal to serve about 1,500 acres. This canal project spawned both town formation and conversion of desert land into irrigated farmland. About 40 miles of the Alamo Canal ran through Mexico before crossing into the US, east of Calexico. Within 3 years, silting up of the headworks and upper reaches of the canal led to the excavation of a temporary bypass channel, about 4 miles downstream in Mexico.

In 1901, the Imperial Valley was platted and from 1901 to 1905 the Imperial Valley rapidly developed as more land was cleared and more irrigation drainage ditches were constructed to deliver the water coming through the Alamo Canal. For a few years, this water distribution system worked well, but in the fall of 1904, unseasonable floodwaters on the Colorado and Gila Rivers broke into the bypass and down the Alamo Canal. For almost 2 years the entire flow of the Colorado River poured into the Salton Sink forming the Salton Sea.

Meanwhile, to promote increased commercial export of agricultural products, a branch rail line was built from Niland in 1907 to serve the growing settlements to the south. The branch line connected to the transcontinental line of the Southern Pacific Railroad (SPRR), located along the north end of Imperial Valley and northeast of the Algodones Sand Dunes to Yuma. More importantly, by 1907, SPRR bought out the CDC and successfully returned the Colorado River to its original channel. Also in 1907, Imperial County was broken off from San Diego County and boasted a population of around 15,000.

As an outgrowth of the flood, Imperial Valley residents were forced to make major improvements to the irrigation system. But during the next several years, physical, financial, and international complications, and legal problems plagued the project. In 1911, the settlers

formed a local agency that resulted in the formation of IID. IID is a public corporation organized under the California Irrigation District Act. By 1916, with financial and legal problems settled, IID purchased the rights and property of the CDC and SPRR, and settlement of Imperial Valley expanded along with the growth of agriculture.

Although the original plan called for the AAC to be lined, both the AAC and Coachella Canal were built as unlined canals in the 1940s to bring Colorado River water into the Imperial and Coachella Valleys. Construction of the AAC started in 1934 and was completed in 1940. Water deliveries to the East Highline Canal began in late 1940. In early 1942, all water diverted to the Imperial Valley was delivered via the AAC. By 1948, the Coachella Canal was completed and began diverting water from the AAC to the Coachella Valley. Leakage from the unlined canals prompted Reclamation to reconstruct the first 49 miles of the Coachella Canal with a new, concrete-lined canal. Today, Imperial County has a complex system of irrigation and drainage canals that serve communities with water for agricultural and domestic uses.

3.8.3.3 Identification Methods for Collection of Existing Setting Information

For the LCR geographic subregion, cultural resources existing setting information was summarized from the IA EIS (Reclamation 2002) and Draft QSA PEIR (CVWD, et al 2002). For the IID water service area and AAC geographic subregion, cultural resources information was obtained from CHRIS. Although the AAC is included in this geographic subregion, all Projected Project-related impacts to the canal would be limited to fluctuations in water flow within the canal itself; no new ground-disturbing construction would be anticipated.

Archaeological Resources and the Recorded Historic Built Environment. For archaeological resources and elements of the historic built environment that are present within the Salton Sea geographic subregion, record searches were conducted at the appropriate CHRIS branch offices. Information on surveys and sites in Riverside County were obtained from the CHRIS Eastern Information Center at U.C. Riverside. Information on surveys and sites in Imperial County was gathered from the CHRIS Southeast Information Center at the Imperial Valley College Desert Museum in Ocotillo. Many historic sites in the built environment were not recorded.

Ethnographic Resources. Ethnographic resources were identified through the joint efforts of Reclamation and Tetra Tech. Reclamation sent letters to 29 tribal organizations in California and Arizona with traditional and historic ties to the area. The intent of the correspondence was to initiate consultation on ethnographic resources important to the tribes that might be affected by the Salton Sea Restoration Project. The methods employed by Tetra Tech for the Salton Sea Restoration Project were summarized by Smith, et al. (1999b) in a report titled, "Salton Sea Restoration Project: Contacts with Native American Groups."

CH2M HILL sent letters to tribes within, or adjacent to, the Salton Sea and the IID water service area to solicit information about cultural resources of concern to those tribes. See Section 3.9, Indian Trust Assets, for additional information on tribes in these subregions. Additional ethnographic resource information is presented in the Draft QSA PEIR (CVWD, et. al. 2002).

For the Proposed Project's LCR effects, Reclamation is implementing a similar methodology for contacting Indian tribes with traditional and historic ties to the LCR geographic subregion. Reclamation is engaged in frequent government-to-government consultations with the tribes along the LCR that could potentially be affected by changes in the operation of the LCR as a result of the Proposed Project. Reclamation is responsible for offering each tribe an opportunity to directly express its concerns. Since Reclamation is the co-lead agency with IID for this EIR/EIS, Reclamation has provided the results of its tribal consultations to IID for incorporation into this EIR/EIS in Section 3.9, Indian Trust Assets.

3.8.3.4 Known Cultural Resources

Archaeological Resources. According to information provided by Karen Collins and Jay von Werlhof (Imperial Valley College) to Jurg Heuberger, who prepared the Conservation and Open Space Element for Imperial County, about 7,500 prehistoric archaeological sites, consisting of settlements, trails, rock art, geoglyphs, fish traps, and resource procurement and manufacturing locations, have been recorded in Imperial County (Heuberger [no date]).

The current distribution and availability of such resources are a consequence of several environmental and historic factors, including the periodic flooding of ancient Lake Cahuilla and the existence of the New and Alamo Rivers, all of which encouraged prehistoric settlement and resource use of their shorelines and riverbanks. Conversely, the Algodones Sand Dunes are a feature that discourages the likelihood of finding prehistoric sites. Further, intensive use of Imperial Valley for irrigation agriculture since the beginning of the 20th Century have harmed most resources that might have existed on land that is now farmland or under the Salton Sea.

Jay von Werlhof's archaeological sensitivity map, revised as of May 17, 1993, portrays areas of vastly different probability for finding archaeological sites. Few highly sensitive resources exist within major populated and developed portions of Imperial County (i.e., the areas that have been intensively farmed). Important exceptions include the New and Alamo Rivers, which were extensively used by the Kamia as late as the mid-1800s. Highly sensitive areas include the east and west shorelines of former Lake Cahuilla; lower Borrego Valley east to Highway 86; the area around Ocotillo; part of the Pilot Knob Mesa east of Glamis; and the easternmost part of the county, including the Palo Verde Mountains and the area between Ogilby Road and the Colorado River. The only non-agricultural areas not expected to contain resources are in the immediate east and west sides of the Salton Sea and the Algodones Sand Dunes. Areas of moderate to low sensitivity include most of the (mostly unsurveyed) Chocolate Mountains; parts of East Mesa, West Mesa, the Fish Creek Mountains; and the Superstition Mountains. The paucity of water and harsh terrain discouraged major prehistoric use of these regions.

Known/recorded archaeological resources within the IID water service area include 979 prehistoric sites, 111 historic sites, and several other elements of the historic built environment. Known or recorded archaeological resources within the Salton Sea geographic subregion include 83 prehistoric sites, 13 historic sites, and one other element of the historic built environment. Known/recorded archaeological resources within the LCR geographic subregion include seven prehistoric sites, up to 35 historic sites, and three elements of the historic built environment. The distribution of these resources is shown in Table 3.8-2.

TABLE 3.8-2
Cultural Resources within the Proposed Project Geographic Focus Areas

Site Types	LCR	IID Water Service Area	Salton Sea	Total (No. %)
Prehistoric	7 (see below)	979	83	1069
	CA-RIV-783, CA-RIV-1109/CA-RIV-419, CA-IMP-7092, 4-IMP-5871H, AZ-050-1643, AZ-050-347, X:3:13 (ASM)			86%
Historic	6 (see below)	111	13	159
	29 GLO resources			13%
	CA-SBR-9853H, AZ R:6:11 (ASM)/BLM 02-050-037, AZ R:14:16 (ASM), AZ R:14:17 (ASM), 4-IMP-5898H, 4-IMP-5871H			
Historic Built Environment	3	7	1	11
	Parker Dam, Old Parker Road, Imperial Dam,	Historic Bonita School; historic AAC; historic cemetery; historic airstrip; historic Southern Pacific railroad tracks; historic railroad grade; and historic Laguna Dam	Historic railroad grade	1%

Schaefer's (1994b) review of archaeological research in the Colorado Desert addresses the difficulty inherent in site detection in the Imperial Valley vicinity. Schaefer 1994a observed that many sites relating to the reoccupation of the Salton Trough (after the desiccation of Lake Cahuilla) along the New and Alamo Rivers were destroyed in the great flood of 1905-1906, or by later agricultural activities. He further commented that no substantial Late Prehistoric sites have been investigated on the LCR floodplain because many have been obscured by alluvium or recent agricultural developments.

When sites are discovered on or near the banks of New River, they usually consist of scatters of broken pottery. As Van Camp (1979) observed, an essential element to the success of the hunting and gathering lifeway is the ability find foods, process them, and store them so that something is available at all times. The major processes (pounding, milling, grinding, leaching, and drying) could convert almost any plant into a product, which would be used as a food, medicine, or tools. Food in most of aboriginal California was stored in basket containers.

While pottery was not essential to Kumeyaay life, it did confer considerable advantages. Pottery vessels are waterproof, rat-proof, and insect-proof, if well sealed. Pottery makes possible direct cooking over a fire and eliminates the time-consuming process of stone-boiling, in which stones hot from the fire are dropped into a sealed basket of food until the food is hot. Water could be stored in larger containers for longer periods of time. Pottery may have enabled the Kumeyaay to be more sedentary because of increased storage

capacity, leading to larger populations and the establishment of more long-term residences in favorable spots. It is also possible that use of more reliable storage containers and a greater dependence on stored plant foods might have facilitated the introduction of horticulture (Van Camp 1979). The important point is that pottery is probably the most obvious indicator (in addition to isolated lithic debitage) of prehistoric occupation in the Proposed Project area, because fired ceramics survive well and perishable basketry does not.

In contrast to the Imperial Valley bottom land, archaeological sites along the ancient shorelines of the Salton Trough are often recognized by a number of distinctive features, such as house rings with associated artifacts, sandstone slab hearths, cremations, artifacts sometimes covered with travertine, abundant obsidian and quartzite lithic debris, shell (abalone, *Olivella*, cardium, limpet, and mussel), fishbone, bird bones, and mammal bones.

Many sites along the ancient shorelines consist of elaborately constructed stone fish-traps located below the maximum shoreline at 12 meters (m; 40 feet) above sea level. Examination of fish-trap sites has recently shed greater light on the importance of fishing by peoples ancestral to the historic Cahuilla and Kamia, and to reconstructing the nature and timing of Lake Cahuilla infillings and recessions (Schaefer 1998).

Resources of the Historic Built Environment. According to von Werlhoff, about 800 historic sites (including trash dumps) have been recorded in Imperial County (Heuberger [no date]). Important historic resources date back to 1540, when Hernando de Alarcon discovered Alta California near the intersection of Interstate 8 and Highway 186 on the Colorado River (California Historical Landmark [CHL] No. 568). In 1775, Juan Bautista de Anza first passed through the area. The Anza Trail, itself, is a significant cultural resource, as is the later Sonoran/Southern Emigrant Trail that served as a major route to and from coastal California, from 1825 to 1865. Several historical markers are present along the Anza Trail, including the monument of Los Puertecitos (CHL No. 635) near Highway 78 and Kane Springs Road. Two significant resources from the Spanish period (1769-1821) are the La Purisima Conception Mission site (CHL No. 35), located at Mission St. Thomas on Indian Hill, and the San Pedro y San Pablo de Bicuñer Mission site (CHL No. 921), located near Laguna Dam. The former was built in 1780 at the request of the local Indians; the latter was built in January 1781 as a strategic settlement for those crossing the Colorado River. Both were attacked and destroyed on July 17, 1781, by the Quechans.

One of the few known Mexican-period (1821-1848) sites is Fort Romualdo Pacheco (CHL No. 944). Located about 7 miles west of Imperial, near the New River, it was the only Mexican fort in Alta California, and was built to help maintain the Sonoran Trail. It was constructed in 1825 and attacked by the Kamia on April 26, 1826, resulting in the deaths of three soldiers and its abandonment. Low, adobe mounds remained in 1968, but were leveled for agricultural purposes shortly thereafter. Imperial Valley College excavated this site in 1978. Few early American-period (1848–early 1900s) sites remain (except for the Southern Pacific Railroad) because little settlement or other use occurred until irrigation water became available in 1901.

Most sites have been disturbed by agricultural activities and town construction. One site has received a historical monument designation for being the location where the first irrigation water entered the county—a few feet from the U.S. Mexican border on Barbara Worth Road, between Calexico and the Alamo River.

Another significant site is the Plank Road near I-8 along the Algodones Sand Dunes, which was used from 1914 to 1927 (CHL No. 845). Sites of local importance are documented in Imperial Valley Historical Markers (Little 1982). Plat maps from the early 1900s indicate numerous structures throughout Imperial Valley. While many of these structures are no longer standing, the potential exists for subsurface features, such as house foundations, privies, and trash deposits.

The BCPA began one of the most monumental public reclamation projects ever undertaken in the western US. The Act authorized construction of Boulder Dam (Hoover Dam), Imperial Dam, the AAC, and the Coachella Branch of the AAC (Schaefer and O'Neill 1998b). Boulder Dam was dedicated in 1935. Some 300 miles downstream, Imperial Dam was constructed between 1935 and 1938. This was the diversion point for the AAC, where three enormous desilting basins cleansed the muddy Colorado River waters. The AAC was excavated between 1934 and 1940 to carry water 82 miles to the Imperial Valley; the last element to be completed was the 123.5-mile Coachella Branch, which was begun in 1934 but not opened until 1949 because of a construction hiatus during World War II. The original Coachella Canal supplied water to the Coachella Valley until 1982, when portions of it were replaced by a concrete-lined canal designed to greatly reduce seepage.

The AAC is a historic property (CA-IMP-7130-H) and has been assigned the National Register Status Code 3D (appearing to be eligible for listing in the National Register of Historic Places, as a contributing property of a district) (Reclamation 1994). The Old Coachella Canal is also a historic property (CA-IMP-7658) that has been evaluated by Schaefer and O'Neill (1998b) as eligible for listing in the NRHP, under Criteria A.

Ethnographic Resources.

Lower Colorado River. Information on ethnographic resources in the LCR geographic subregion is incorporated into this EIR/EIS by reference of the Draft IA EIS (Reclamation 2002) and Draft QSA PEIR (CVWD et al 2002).

The Native American Heritage Commission in Sacramento was contacted to secure information on any sacred lands that might be present in LCR geographic subregion, and to secure a list of Most Likely Descendants (MLDs) who should be contacted for information about ethnographic resources. The Native American Heritage Commission reported that no sacred lands are present in the LCR Proposed Project area (Pilas-Treadway 2000).

IID Water Service Area. For the IID water service area and AAC geographic subregion, limited ethnographic Baseline information was collected from CHRIS (see below). Although the AAC is included in this geographic subregion, all Proposed Project-related effects would be limited to fluctuations in water flow within the AAC itself; no new ground-disturbing construction would be anticipated. Additional Baseline information on ethnographic resources might be obtained from Reclamation if Reclamation releases the cultural resources technical report that supported the March 1994 AAC Lining Project FEIS/FEIR (CA State Clearinghouse No. SCH 90010472). The Baseline information collected for the AAC includes the canal itself, and a 0.5-mile-wide buffer around the canal. In addition, the Native American Heritage Commission in Sacramento was contacted to secure information on any Sacred Lands that might be present in Imperial County Proposed Project area, and to secure a list of MLDs who should be contacted for information about ethnographic resources. The

Native American Heritage Commission reported that no sacred lands are present in the IID water service area and AAC geographic subregion (Pilas-Treadway 2000).

The AAC, from Pilot Knob to Drop 4, traverses through land that contains the remains of cultural activity from prehistoric times until recent historic periods. The Pilot Knob area, which is adjacent to the AAC near Yuma, is one of the most significant and sensitive cultural resource areas in the Colorado Desert. Pilot Knob, which contains abundant and diverse archaeological remains, was the focus of traditional ceremonies and symbolism for the Quechan, Cocopah, Kamia, and possibly other Indian groups. Pilot Knob and parts of the gravel terraces on its south side are sacred in the religious practices of the Quechan Indian Tribe, on whose behalf the BLM has restricted public access. Pilot Knob has been established as an Area of Critical Environmental Concern along the AAC to protect archaeological and Native American cultural resources (Reclamation 1994).

Salton Sea. For the Salton Sea geographic subregion, limited ethnographic existing setting information was collected from CHRIS (Ocotillo and UC Riverside). In addition, the Native American Heritage Commission in Sacramento was contacted to secure information on any sacred lands that might be present in the Salton Sea geographic subregion, and to secure a list of MLDs who should be contacted for information about ethnographic resources. The Native American Heritage Commission reported that no sacred lands are present in the Salton Sea geographic subregion (Pilas-Treadway 2000).

For the Salton Sea Restoration Project (see Section 1.5), 29 tribal organizations in California and Arizona were contacted by Reclamation by letter, phone calls, and follow-up visits, in certain cases. Twenty-two groups stated that they had no direct concerns about the Proposed Project, while one group—the Torres Martinez Desert Cahuilla—stated specific concerns, and four other groups said that they might have concerns. Several groups stated that they would like to participate in monitoring sensitive areas. The Kumeyaay Cultural Repatriation Committee (KCRC) stated that they should be contacted immediately if human remains or burial goods are found during any construction activities. The Torres Martinez expressed concerns about cultural and ethnographic resources in and around the Salton Sea, and about archaeological sites located on the US Navy Test Base that may be affected by restoration efforts.

3.8.4 Impacts and Mitigation Measures

3.8.4.1 Significance Criteria

Section 15064.5 (CEQA Guidelines, revised October 26, 1998) indicates a project may have a significant environmental effect if it causes “substantial adverse change” in the significance of an “historical resource” or a “unique archaeological resource” as defined or referenced in CEQA Guidelines section 15064.5[b, c] (1998). Such changes include “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines 1998 section 15064.5 [b]).

An impact on cultural resources is considered significant, therefore, if it adversely affects a resource that is listed in or eligible for listing in the CRHR or is otherwise considered a unique or important archaeological resource under CEQA. In general, the Proposed Project and/or Alternatives would have a significant impact if they:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5;
- Directly or indirectly destroy a unique paleontologic resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Note that federal criteria used to determine the adverse effects of federal actions are not specifically listed. Refer to the IA EIS (Reclamation 2002) for information on the methodology used to determine such adverse effects in the LCR geographic subregion.

3.8.4.2 Methodology

The methodology used to support this cultural resources analysis is based on existing cultural resource data on file with the CHRIS offices in Riverside and Ocotillo, California, information collected from IID archives, the Draft QSA PEIR (CVWD, et. al. 2002), IA EIS (Reclamation 2002), and other resources listed throughout this section. For the purpose of this impact assessment, the following agencies were contacted:

- Native American Heritage Commission, Sacramento – Sacred Lands Inventory.
- California Historical Resources Information Center, located at the Imperial Valley College Desert Museum (Ocotillo) and the University of California, Riverside.
- IID cultural resource archives.
- Reclamation, Phoenix Area Office.

In addition, the impact analysis assumes that significant cultural resources are those listed in, or are eligible for listing in, national, state, and local historic registers and/or landmark inventories, consistent with definitions of eligibility in federal, state, and local laws and regulations (see Section 3.8.4.1, Significance Criteria).

As described in the IA EIS (Reclamation 2002), the effects of the Proposed Project as a result of the federal action of changing the point of diversion of Colorado River water from its current point of diversion at Imperial Dam, upstream to Parker Dam, will best be considered within the broader framework provided by the Section 110 consultation effort it has committed to conducting under the Interim Surplus Guidelines ROD (see Section 1.6.3), which covers all activities involved in its on-going operation of the LCR.

Subregions Excluded From Impact Analysis. The SDCWA geographic subregion is not discussed in this section because no construction or land disturbance would occur.

3.8.4.3 Proposed Project

LOWER COLORADO RIVER

Approval of a change in the point of delivery of conserved Colorado River water annually, from Imperial Dam upstream to Parker Dam, would reduce the volume of water flowing

between the two dams. A decrease in flow volume could lead to a concomitant lowering of stream surface elevation. However, because River flows and associated surface elevations would fluctuate within the predicted ranges for a variety of reasons, it is unlikely that there would be any changes to depositional or erosion processes along the River and its tributaries. In addition, no changes to the surface area of backwaters or riparian habitats are expected to occur. Because no surface disturbance would occur as a result of the approval in the change in the point of diversion, there would be no adverse effect to Parker Dam or Imperial Dam. Reclamation finds that there would be no adverse effect to cultural resources in the LCR geographic subregion as a result of the approval of the change in the point of diversion (Reclamation 2002). (No impact.)

On August 13, 2002, Reclamation transmitted to the State Historic Preservation Officers (SHPO) of the states of Arizona, California, and Nevada, a report entitled “A Class I Overview and Effects Analysis for Execution of an Implementation Agreement, Development and Adoption of an Inadvertent Overrun and Payback Policy, and Associated Biological Conservation Measures of the Lower Colorado Between Lake Mead and Imperial Dam.” In the transmittal letter to each SHPO, Reclamation identified the following findings:

1. Consultation on development and adoption of an Inadvertent Overrun and Payback Policy is best deferred to the broader consultation effort Reclamation has committed to conduct with the Advisory Council on Historic Preservation and other interested parties under Section 110 of the NHPA.
2. Consultation concerning the implementation of the biological conservation measures (associated with the change in diversion of up to 400 KAFY of Colorado River water) will be deferred until the specifics of the projects have been developed to the point when potential effects to historic properties can be better ascertained and assessed.
3. There will be no adverse effect to historic properties located in California as a result of the execution of an IA providing for a change in the point of delivery of up to 400 KAFY of Colorado River water from its current point of delivery at Imperial Dam, upstream to Park Dam.

Reclamation requested concurrence with these findings and will take into consideration any comments received by the SHPOs prior to preparation of the Record of Decision.

IID WATER SERVICE AREA AND AAC

Water Conservation and Transfer

Impact CR-1. Construction of conservation measures for water conservation program. Potential impacts to cultural resources could occur because several conservation measures involve ground disturbance. It is difficult to quantify the relative impact of the conservation measures on archaeological sites that might be present. The first consideration is that in existing farmland, archaeological sites that consisted only of surface or near surface cultural deposits have already suffered disturbance from plowing and furrowing. Deeper archaeological sites, if present, might have survived ongoing plowing and furrowing associated with active farming and their cultural deposits might still be intact. As a result, those conservation measures that require ground disturbance to greater depth would have the greatest potential for impacts to archaeological resources.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

(Note that if fallowing is used as the exclusive conservation measure under the Proposed Project, no impacts would occur and no mitigation measures would be required.)

Mitigation Measure CR-1. Construction of conservation measures can occur anywhere within the IID water service area; therefore, pre-Project surveys have not been conducted. The following mitigation measures have been designed to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

- Archaeological and historical surface surveys will be conducted to identify any cultural resources that may be affected. Areas that may contain buried archaeological resources also will be identified.

Archaeological Resources

- Modify Project design, when feasible, to avoid impacts to cultural resources, unless a qualified archaeologist conducts a field inspection and determines that the resource has no potential for significance because it is re-deposited, an isolated occurrence, modern, or otherwise lacks data potential.
- Develop and implement a pre-Project Phase II Testing and Evaluation Plan for all unavoidable potentially significant archaeological sites that will be directly impacted to evaluate the significance of the resource in terms of applicable criteria.
- Develop and implement a pre-Project Phase III Data Recovery Plan for all significant archaeological sites that will be directly impacted if the sites cannot be avoided through redesign.
- If impacts to significant resources cannot be reduced to less than significant levels through data recovery or by other mitigation measures, then the Project will be redesigned to avoid the impact.
- Develop a Cultural Resources Construction Monitoring Plan prior to construction if ground disturbance will occur within any areas of archaeological sensitivity, such as recorded sites and areas that may contain buried archaeological sites.
- In the event of an unanticipated cultural resource discovery during construction, all ground disturbances within 200 feet of the discovery will be halted or re-directed to other areas until the discovery has been documented by a qualified archaeologist and its potential significance evaluated in terms of applicable criteria. Resources considered significant will be avoided or subject to a data recovery program as described above.
- Coordinate with SHPO and local Native American groups, if required, in compliance with applicable state laws.

Architectural Resources

- If avoidance of a potentially significant architectural resource is not feasible, then the resource will be documented on DPR forms and resource significance will be evaluated according to applicable criteria. If significant, then the architectural resource either will be relocated or integrated into construction design. Structural reuse will be consistent with the Secretary's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (see CEQA Guidelines 1998 Section 15064.5 [b][3] and Section 9).
- If a significant resource is not avoidable or incorporated into construction design, then recordation will be conducted through large-format black-and-white archival photographs, building descriptions, and archival research to establish their regional context. The recordation report will be submitted to a local or regional historic society.

Paleontologic Resources

- A literature review and paleontological field survey (as needed) will be conducted as part of site-specific CEQA review to identify potential impacts to rock units that may contain significant fossil remains.
- Modify construction design, when feasible, to avoid impacts to all significant paleontologic resources.
- Construction monitoring by a qualified paleontologist may be recommended for locations within paleontologically sensitive sediments. If so, a Paleontological Monitoring Plan shall be prepared prior to ground disturbance in sensitive areas.
- In the event of an unanticipated discovery during construction, all ground disturbance within 200 feet of the discovery will be halted or re-directed to other areas until the discovery has been recovered by a qualified paleontologist.
- All paleontologic resources recovered will be appropriately described, processed, and curated in a scientific institution such as a museum or university.

Inadvertent Overrun and Payback Policy (IOP)

Impact CR-2. Construction of conservation measures for IOP compliance. Potential impacts to cultural resources could occur for the same reasons discussed above under Impact CR-1. Impacts on cultural resources would be potentially significant. (Potentially significant impact.)

(Note that if fallowing is used as the exclusive conservation measure to comply with the IOP, no impacts would occur and no mitigation measures would be required.)

Mitigation Measure CR-2. Construction of conservation measures can occur anywhere within the IID water service area; therefore, pre-Project surveys have not been conducted. The mitigation measures discussed under Mitigation Measure CR-1 have been designed to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

Impacts resulting from the compliance of the IOP would be the same for Alternatives 2, 3, and 4; therefore, they are not discussed under each Alternative.

Habitat Conservation Plan (HCP-IID) (IID Water Service Area Portion)

Impact HCP-IID-CR-3. Creation of Managed Marsh Habitat. Potential impacts to cultural resources could occur during ground disturbance and construction activities. For the same reasons as discussed above under Impact CR-1, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure CR-3. The exact location of the managed marsh habitat in the IID water service area has not been determined; therefore, pre-Project surveys have not been conducted. The same mitigation measures listed under Mitigation Measure CR-1 would apply to this impact to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

Salton Sea Habitat Conservation Strategy (HCP-SS)

Mitigation water for the Salton Sea Habitat Conservation Strategy could be generated via fallowing within the IID water service area, although other sources of water could be used as described in Section 2.2.6.7. If fallowing is used, no impact to cultural resources in the IID water service area would result from this fallowing.

Impacts resulting from implementation of HCP in the IID water service area would be the same for Alternatives 2, 3, and 4; therefore, they are not discussed under each Alternative.

SALTON SEA

Water Conservation and Transfer

Impact CR-4. Reduced Inflows to the Salton Sea. Reduced inflows to the Salton Sea from the Proposed Project's water conservation program (see Section 3.1, Hydrology and Water Quality) would lower the Sea's level. Lower Sea level would, in turn, expose submerged land. Newly exposed land potentially contains archaeological sites that could potentially be vandalized if they were not protected. Newly exposed land could also potentially be cultivated or developed, thus harming any archaeological sites, if they were not protected.

Prior to the accidental creation of the Salton Sea in the early years of the 20th Century, prehistoric and historic archaeological sites were present in what is now the Salton Sea. Creation of the Salton Sea flooded any prehistoric and historic sites that were present. Once the Salton Sea level reached stability in the early decades of the 20th Century, the shorelines were used for recreational purposes. Archaeological sites accessible to recreationists might have suffered from unauthorized artifact collection. In the later decades of the 20th Century, the Salton Sea received wastewater inflows from the Imperial Valley. The shoreline elevation rose and flooded these early- to mid-20th Century shorelines.

Through the years, the rich sediment load of inflowing wastewaters have deposited silt on the lake bottom, probably covering the inundated archaeological sites with one or more inches of deposited sediment. With reduced inflows anticipated by early 21st Century water conservation, Salton Sea levels will fall and previous early-mid 20th Century shorelines will be exposed (but with a layer of deposited silt). Any archaeological sites that might be present would be only gradually exposed during the Project term (as reduced inflows

gradually result in lowered Sea levels). Such sites would be obscured by the deposited sediment, and would likely be recolonization of freshly exposed surfaces to invading plant life. (Potentially significant impact.)

Mitigation Measure CR-4. Gradual exposure of submerged lands would potentially expose archaeological sites, if they are present. The same mitigation measures listed under Mitigation Measure CR-1 would apply to this impact to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. In addition, a series of archaeological surveys at regular intervals (once every 3 years) will be conducted to check freshly exposed lands for the presence/absence of archaeological sites. (Less than significant impact with mitigation.)

Salton Sea Habitat Conservation Strategy (HCP-SS)

Under the Salton Sea Habitat Conservation Strategy, mitigation water could be provided by fallowing in the IID water service area and supplied to the Sea to maintain the salinity of the Sea below 60 ppt until 2030. The surface elevation of the Salton Sea would be equal to or greater than under the Baseline until about 2035. Thus, the Salton Sea Habitat Conservation Strategy would delay the accelerated exposure of the seabed that would occur under the Proposed Project without the HCP. After 2035, the Sea elevation would decline beyond that which would occur under the Baseline and result in the impact described under CR-4. No other impacts to cultural resources would result from implementation of the Salton Sea Habitat Conservation Strategy.

As described in Section 2.2.6.7, the Salton Sea Habitat Conservation Strategy has been evaluated in this final EIR/EIS with the assumption that mitigation water would be generated by fallowing within the IID water service area. Other sources of water could be used, but they have not been evaluated in this EIR/EIS.

Additionally, under the Proposed Project, the implementation of the Salton Sea Habitat Conservation Strategy in concert with the on-farm irrigation system improvement approach to conserving water for transfer was determined not to be feasible because of the number of total acres that would be needed. This is because the “efficiency conservation” measures require a 1 to 1 ratio of mitigation water to the Sea. Therefore, the combination of only on-farm and/or delivery system efficiency conservation measures required to produce 300 KAFY for transfer plus fallowing within the IID water service area as the sole method of providing the mitigation water associated with the Salton Sea Habitat Conservation Strategy has not been assessed in this final EIR/EIS.

Additional details of the Salton Sea Habitat Conservation Strategy can be found in Section 2.2.6.7.

Impacts resulting from implementation of HCP in the Salton Sea would be the same for Alternatives 2, 3, and 4; therefore, they are not discussed under each Alternative.

3.8.4.4 Alternative 1: No Project

LOWER COLORADO RIVER

Under the No Project Alternative, Baseline conditions would continue and the River’s elevation would continue to fluctuate. No disturbance to cultural resources would occur.

IID WATER SERVICE AREA AND AAC

Under the No Project Alternative, the Baseline condition would continue. Current agricultural practices would continue, and cultural resources would continue to receive only the protection and/or consideration afforded by environmental assessments triggered by other projects that may require CEQA and/or NEPA compliance. In addition, the HCP would not be implemented.

SALTON SEA

Under the No Project Alternative, Baseline conditions would continue and the Salton Sea's elevation would continue to decline. The same cultural resources impacts described under the Proposed Project would occur (except at a later date) as the Sea level declines if buried cultural resources are present in the Sea bed. In addition, the HCP would not be implemented.

3.8.4.5 Alternative 2 (A2): Water Conservation and Transfer of Up To 130 KAFY to SDCWA (On-farm Irrigation System Improvements as Exclusive Conservation Measure)

LOWER COLORADO RIVER

For the same reasons as listed under the Proposed Project, no adverse effects would occur in the LCR geographic subregion with implementation of this Alternative.

IID WATER SERVICE AREA AND AAC

Water Conservation and Transfer

Impact A2-CR-1. Construction of conservation measures for water conservation program. Similar potential impacts to cultural resources could occur under this Alternative as under the Proposed Project because several conservation measures involve ground disturbance. If impacts do occur, however, they would be fewer than under the Proposed Project because fewer conservation measures would need to be constructed.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure A2-CR-1. The exact location of the conservation measures in the IID water service area has not been determined; therefore, pre-Project surveys have not been conducted. The same mitigation measures listed under Mitigation Measure CR-1 would apply to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

SALTON SEA

Water Conservation and Transfer

Impact A2-CR-2. Reduced inflows to the Salton Sea. Similar potential impacts to cultural resources along the Salton Sea bed could occur under this Alternative as under the Proposed Project. If impacts do occur, however, they would be fewer than under the Proposed Project because less Sea bed acreage would be exposed.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure A2-CR-2. The same mitigation measures listed under Mitigation Measure CR-1 would apply to this impact to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

3.8.4.6 Alternative 3 (A3): Water Conservation and Transfer of Up To 230 KAFY to SDCWA, CVWD, and/or MWD (All Conservation Measures)

LOWER COLORADO RIVER

For the same reasons as listed under the Proposed Project, no adverse effects would occur in the LCR geographic subregion with implementation of this Alternative.

IID WATER SERVICE AREA AND AAC

Water Conservation and Transfer

Impact A3-CR-1. Construction of conservation measures for water conservation program. Similar potential impacts to cultural resources could occur under this Alternative as under the Proposed Project because several conservation measures involve ground disturbance. If impacts do occur, however, they would be fewer than under the Proposed Project because fewer conservation measures would need to be constructed.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure A3-CR-1. The exact location of the conservation measures in the IID water service area has not been determined; therefore, pre-Project surveys have not been conducted. The same mitigation measures listed under Mitigation Measure CR-1 would apply to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

SALTON SEA

Water Conservation and Transfer

Impact A3-CR-2. Reduced Inflows to the Salton Sea. Similar potential impacts to cultural resources along the Salton Sea bed could occur under this Alternative as under the Proposed Project. If impacts do occur, however, they would be fewer than under the Proposed Project because less Sea bed acreage would be exposed.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure A3-CR-2. The same mitigation measures listed under Mitigation Measure CR-1 would apply to this impact to provide assurances in the event that if cultural resources

are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)

3.8.4.7 Alternative 4 (A4): Water Conservation and Transfer of Up To 300 KAFY to SDCWA, CVWD, and/or MWD (Following As Exclusive Conservation Measure)

LOWER COLORADO RIVER

For the same reasons as listed under the Proposed Project, no impacts would occur in the LCR geographic subregion with implementation of this Alternative.

IID WATER SERVICE AREA AND AAC

No impacts would occur under this Alternative because fallowing does not involve ground disturbance.

SALTON SEA

Water Conservation and Transfer

Impact A4-CR-1. Reduced inflows to the Salton Sea. The same potential impacts to cultural resources along the Salton Sea bed would occur under this Alternative as under the Proposed Project.

Depending on the nature of the cultural resource, the impact, and the ability to modify construction activities to avoid or minimize the impact, impacts on cultural resources would be potentially significant. (Potentially significant impact.)

Mitigation Measure A4-CR-1. The same mitigation measures listed under Mitigation Measure CR-1 would apply to this impact to provide assurances in the event that if cultural resources are encountered during Project construction or operation, they will be handled appropriately. (Less than significant impact with mitigation.)